R E P O R T

OF THE

NINTH ROCKY MOUNTAIN CONFERENCE

OF ENTOMOLOGISTS

PINGREE PARK, COLORADO

August 15 to 20, 1932

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Report of the Ninth Rocky Mountain Conference of Entomologists, Pingree Park, Colorado, August 15 to 20, inclusive, 1932.

Edited by Geo. M. List, Secretary

The Ninth Rocky Mountain Conference of Entomologists was held in the Colorado Agricultural College Forestry Lodge, Pingree Park, Colorado, August 15 to 20, with a total registration during the week of 88, the largest number ever in attendance. These included 44, representing 11 states, that were directly interested in entomology. The remainder were members of families that enjoyed the week fully as much as those that combined business and pleasure Excellent weather prevailed, with only a few afternoon mountain showers. No frosts were recorded, which was rather unusual for an altitude of over 9000 feet.

Many of those in attendance arrived in Fort Collins on Sunday the 14th. and were anxious to get started to the Park early Monday morning. Practically all were in the Park by noon with their outing appetite ready for the first meal that was waiting for them.

Following is a list of those in attendance:

Miriam A. Palmer.....Fort Collins, Colo.
C. L. Fluke.....Madison, Wisc.
L. B. Daniels.....Fort Collins, Colo.
Geo. A. Dean.....Manhattan, Kan.
Mrs. Geo. A. Dean.....Manhattan, Kan.
L. Margorie Dean.....Manhattan, Kan.
Helen E. Dean.....Columbia, Mo.
Dorothy Dean.....Manhattan, Kan.
Paul M. Dean.....Manhattan, Kan.
A. W. Lindquist.....Uvalde, Texas.
Florence Ackert.....Manhattan, Kan.
J. E. Ackert.....Manhattan, Kan.
Jane Ackert.....Manhattan, Kan.
Katherine C. Doering.....Lawrence, Kan.
Paul B. Lawson.....Lawrence, Kan.
Lila Lawson.....Lawrence, Kan.
Maurice T. James.....Boulder, Colo.
Mrs. Helen B. James.....Boulder, Colo.
John Weaver.....Fort Collins, Colo.
Sam. C. McCampbell and son.....Fort Collins, Colo.
Mrs. Mary McCampbell.....Fort Collins, Colo.
C. A. Bjurman.....Fort Collins, Colo.
R. G. Richmond.....Fort Collins, Colo.
F. B. Paddock.....Ames, Iowa.
Mrs. F. B. Paddock.....Ames, Iowa.
Mary Beth Paddock.....Ames, Iowa.
Donald A. Wilbur.....Manhattan, Kan.
Mrs. Gertrude C. Wilbur.....Manhattan, Kan.
Eloise C. Wilbur.....Manhattan, Kan.
Lee Jenkins.....Fort Collins, Colo.
Leonard Sweetman.....Fort Collins, Colo.
C. P. Gillette.....Fort Collins, Colo.
Mrs. Florence Malcouronne.....Fort Collins, Colo.

Geo. M. List.....Fort Collins, Colo.
Louis G. Davis.....Grand Junction, Colo.
J. H. Newton.....Paonia, Colo.
Chas. M. Drage.....Paonia, Colo.
C. L. Hayward.....Provo, Utah.
C. R. Collins.....Manhattan, Kan.
Lee Jeppson.....Brigham City, Utah.
F. Martin Brown.....Colo. Springs, Colo.
Hazel H. Brown.....Colo. Springs, Colo.
F. T. Cowan.....Fort Collins, Colo.
John L. Hoerner.....Fort Collins, Colo.
Edna B. Hoerner.....Fort Collins, Colo.
Veda E. Hoerner.....Fort Collins, Colo.
Orville B. Hitchcock.....Montrose, Colo.
Alexander B. Klots.....Rochester, N. Y.
Elsie B. Klots.....Rochester, N. Y.
Vasco M. Tanner.....Provo, Utah.
Bernard Travis.....Ames, Iowa.
Otis Wade.....Lincoln, Nebr.
Mrs. Otis Wade.....Lincoln, Nebr.
Eugene F. Powell.....Lincoln, Nebr.
Mrs. Eugene F. Powell.....Lincoln, Nebr.
Bob, Jack, Bill and Tom Powell.....Lincoln, Nebr.
Mrs. John W. Scott.....Laramie, Wyo.
John W. Scott.....Laramie, Wyo.
C. H. Richardson.....Ames, Iowa
Jeannette Richardson.....Ames, Iowa
Adelaid Richardson.....Ames, Iowa
Howard Richardson.....Ames, Iowa
Harold E. Rice.....Greeley, Colo.
Leonard Haseman.....Columbia, Mo.
Mrs. Leonard Haseman.....Columbia, Mo.
Joseph Haseman.....Columbia, Mo.
Leonard L. Haseman.....Columbia, Mo.
Wilbur Haseman.....Columbia, Mo.
Jessie Haseman.....Columbia, Mo.
E. R. Bliss.....Greeley, Colo.
Mrs. Addie J. Bliss.....Greeley, Colo.
Claude Wakeland.....Moscow, Idaho
Jack Manweiler.....Fort Collins, Colo.
Mrs. Jack Manweiler.....Fort Collins, Colo.
G. A. Schmidt.....Fort Collins, Colo.
S. Arthur Johnson.....Fort Collins, Colo.
L. M. Gates.....Lincoln, Nebr.
Mrs. L. M. Gates.....Lincoln, Nebr.
Doris Gates.....Lincoln, Nebr.
C. R. Jones.....Fort Collins, Colo.
Maurine Jones.....Fort Collins, Colo.
Red White.....Fort Collins, Colo.

The first regular meeting of the Ninth Conference was called to order at 8:00 p.m., about the fireplace in the Lodge, by C. P. Gillette, Chairman. A few minutes were taken to outline a few rules and customs in regard to camp life, fishing in the nearby streams and lakes, and for the appointment of committees to

supervise certain activities of the week.

The following were appointed: Program, Geo. M. List; Vasco M. Tanner, C. L. Fluke; Entertainment, P. B. Lawson, F. T. Cowan, Mrs. Geo. A. Dean; Resolutions, F. Martin Brown, F. B. Paddock; Nominations, Leonard Haseman, Claude Wakeland.

Following this and a few announcements, each entomologist that had attended a previous conference introduced himself and the members of his party, and told something of his connections and work. Dr. P. B. Lawson then handled the "initiation" of the more than 20 new members present by requiring various original stunts of them. A few songs followed. "Sink the Navy" and various card games concluded the evening.

Tuesday, August 16, 1:30 p.m. C. P. Gillette presiding.

Life History of the Hour Glass Spider, P. B. Lawson, University of Kansas. The hour glass spider, Latrodectus mactans, is more abundant in Kansas than has been thought. It was found in many numbers in a pasture near Lawrence, particularly around clumps of the cactus, Opuntia missouriensis.

The adults are kept readily in captivity in ordinary tubes and it has been found that they lay as many as eight or nine egg sacs containing from 300 to 900 eggs during a season. The young hatch in two to four weeks and are strongly cannabalistic. They are easily fed on fruit flies or leaf hoppers; molt eight times, becoming grown in the later summer.

P.B.L.

Dr. Lawson had several spiders with him that the life history could be studied while on the trip.

Literature gives this species as found only in southern states, but several cases of it being taken in Colorado, Kansas and Utah were mentioned by those present. It is considered the only poisonous spider in this region.

Observations on Pasture Insects near Manhattan, Kansas, Donald A. Wilbur, Kansas State College. Particular attention was given during the past year to insects affecting the seeding of native prairie grasses. On the prairie June grass, Koileria cristata, over 60% were infested by either Cecidomyid larvae congregating just outside and above the second node, or Harmoleta larvae within either the first or second node.

Grasshopper injury to the seeding of grasses was especially marked, although grasshoppers were not abundant. With most of the native prairie grasses only slight feeding occurred on the leaves, but rather the hoppers would tear through the leaf blade or sheath and destroy the tender developing inflorescence before it had emerged from its protective covering. In the case of side oats grama, the hoppers would tear away the leaf sheath and feed on the

culm just above the top node. At this point the culm is especially tender and juicy. As a result, the inflorescence would wither and die. Big blue stem, little blue stem, side oats grame, and Bromus inermis were most seriously injured by grasshoppers.

D.A.W.

White Grub Situation in Wisconsin, C. L. Fluke, University of Wisconsin. More than 100,000 acres of permanent blue grass pastures of Wisconsin are severely infested with white grubs, supporting a population of 50,000 to 450,000 grubs per acre. A population of 80,000 or more per acre shows serious surface evidence as expressed by dead areas of turf which can be rolled back as a blanket.

Control research has involved, up to the present, investigations as to the numbers of grubs poor and good sods will support, and the factors involving oviposition habits of the adult beetles. These factors have been determined by field counts and by laboratory cultures.

One set of experiments included a series of grass cultures, some with high fertility, some with low fertility, and others with various combinations of fertility, cuttings, and moisture. A definite number of growing grubs were introduced into these cultures and after two months results recorded as to condition of grass, root system, etc.

Another experiment was set up in a greenhouse where thousands of beetles were introduced and given various situations for egg laying. After the eggs were hatched the grubs were counted by sifting the soil.

Other tests include many field plots, testing beetle repellants, fertilizer treatments, and cutting practices.

Summary of Some of the Results

Injury to blue grass by white grubs is greatly intensified by unfavorable conditions of the external and internal environments of the plant.

A few of these factors are: deficiencies in soil fertility, organic food reserves of the plants and soil moisture.

Under field conditions some of these deficiencies are caused by injudicious grazing practices such as too early grazing, too heavy grazing, and by alternate cropping which depletes the soil.

Remedial measures consist in renewing the fertility and by building up a heavy sod through addition of fertilizers, particularly nitrogen, either by establishing sweet clover in the pasture or by adding minerals to the sods.

C.L.F.

White Grubs in Iowa, Bernard V. Travis, Iowa State College. Iowa white grub studies have aimed largely at control with mechanical tools. Experimental work has been carried on with a rotary plow, and the results of this have been published in the Jour. Econ. Ent., Vol. 25, pp. 199-207, 1932. This plow operates much like a milling cutter, slicing the soil and slamming it up against a metal shield surrounding the plow. The plow was not very efficient as a general farm tool, but it was quite efficient in the destruction of white grubs, 96.7% of the larvae being destroyed during the plowing operation.

A study was made of migration and transformation depths of these insects. It was found that fall migration begins around the middle of October, and spring migration may not be completed until the middle of May, depending upon the soil conditions and weather conditions. It was also found that the larvae transform at a mean depth of 11.47 inches, thus making it impossible to destroy many with fall plowing as is recommended in the government bulletin.

Last summer over 50,000 beetles were collected from about 17 host plants in order to determine the species present in the state. This data is not completely organized yet, but there are 32 species of Phyllophaga known to occur in Iowa.

Some experimental work with calcium arsenate and Bentonite dust has given rather favorable results and perhaps may prove satisfactory as a control measure.

B.V.T.

Tuesday, August 15, 7:30 p.m. C. P. Gillette presiding.

Glimpses of University Life in England and of Civilian Life on the Continent, James E. Ackert, Dean Division of Graduate Study and Professor of Zoology, Kansas State College, Manhattan, Kan. With the aid of lantern slides, some of them colored, a short description was given of the University of Cambridge, England. Cambridge University consists of about 20 colleges, each furnishing dormitories, dining halls, chapel (church), libraries, and some lecture halls for the students of that college. All the work in the sciences and some of the lectures in literature and arts are furnished by the University proper. Each student must first join a college, paying a considerable annual stipend and then join the University for which additional fees are charged. The annual cost for the average student is about $1500. This includes traveling and living expenses during the vacation months.

The oldest of these colleges was founded in the 13th century, and most of them were completed by 1550 A.D. The University is managed by a committee, the executive head of which is the Vice-Chancellor, who also must be Master of one of the colleges. He serves about two years before being succeeded by another Master. The Chancellor of the University is a public man of high standing. Former Premier Stanley Baldwin is the present Chancellor. He lends his influence, but does not participate actively in the administration of the University.

The students, most of whom are there because of a series of competitive examinations, are well prepared. They must attend class at least half of the time, unless they have a personal tutor. Everything depends upon the final examination at the end of the three year course, leading to the Bachelor's degree. Those who do not study for honors, and thus prepare themselves in three fields of study, example - Chemistry, Physics, Mathematics, receive a degree which has little standing in Great Britain. The honor students on the other hand, are in a position to prepare themselves for the candidacy for the Ph.D. degree, practically all of the work for which may be of problem or research character.

A brief travelog was given of a trip from London to Padua, Italy, to the Eleventh Internal Zoological Congress via Berlin and Vienna, and returning by way of Rome, Lucerne, Heidelberg, and Paris. Conditions in these countries in 1930, while exhibiting much unemployment, were not critical.

J.E.A.

Wednesday, August 17, 8:00 a.m. John W. Scott presiding.

P. B. Lawson took a few minutes to discuss the Journal of the Entomological Society of Kansas. He is a good publicity agent, judging from the fact that 9 subscriptions were secured.

The Cercopidae or Spittle Insects, Kathleen C. Doering, University of Kansas. A few, brief remarks were made concerning the biology and systematic position of the family Cercopidae (Homoptera) in North America. Some particular systematic problems met with in this group were cited. The genus Aphrophora was mentioned as being the least numerous in numbers of specimens. In this genus the external male genitalia are particularly valuable identification characteristics. In the genus Clastoptera the only dependable and logical characteristics are the inner valves of the ovipositor. In the other groups the species are easily recognizable by other external characteristics.

K.C.D.

Remarks on Insecticide Research, C. H. Richardson, Iowa State College. Insecticide work at Ames is along the three lines of stomach poisons, contacts and fumigants. Various fluorine and arsenical compounds are being used in grasshopper baits. A method of feeding in a moist chamber was described. There seems to be no repelling effect from arsenic trioxide but the feeding on sodium arsenite baits is not always normal, probably from a sickening effect. Arsenicals are somewhat repellant to flies.

Mixed gases as fumigants offer a great field. CO_2 inhances CS_2 for instance. The stratification, diffusion and inflammability of mixed gases are being studied.

The technique used in an experiment testing fly sprays on cattle was outlined.

G.M.L.

Entomological Supplies, Alexander B. Klots, Ward's Natural Science Establishment. Ward's Natural Science Establishment, a part of the university of Rochester, is engaged in manufacturing and selling equipment for entomologists on a large scale. The two facts are not irreconcilable; in fact it is felt that perhaps this will prove to be an ideal combination.

As a part of the University, Ward's is not interested in piling up profits. It must pay its own way and be self-supporting; beyond this its one purpose is to contribute to the advancement of science by developing new types of apparatus and equipment, and making these available to scientists and teachers, in a way that would be beyond the limitations of a purely commercial organization.

To carry out this program we must have the cooperation of entomologists. It is partly in order to secure contact with this group of entomologists, and to ask for suggestions of any sort, that I am here. Any ideas, whether for the betterment of any of our present supplies or for the construction of new articles of equipment, will be welcomed. We wish, as nearly as possible, to use Ward's as a sort of a proving ground for new ideas; many of these will be dross, but a few will be pure gold; and it is only through your help and cooperation that we can hope to put over this organization that seems so full of possibilities for the future.

A.B.K.

Wednesday, August 17, 1:30 p.m. Donald A. Wilbur, Chairman.

Sub-subspecific Nomenclature, Alexander B. Klots, University of Rochester. Our present system of Zoological Nomenclature started out in a small way by being binomial. It was not long before workers introduced trinomials; nowadays the quadrinomial is a thoroughly recognized fact in most groups, subgeneric and subspecific names being almost universally approved and used.

Sub-subspecific names (varietal, form, aberrational, etc.) have long been used. Of late years, however, the rate of appearance of such names has increased manyfold, until now there is some danger that not only taxonomists but all other kinds of entomologists will shortly be overburdened with a multiplicity of these. Absurd examples may be cited, such as that of Heodes phlaeas L., the common European Copper, which has over sixty named aberrations.

Such variations are eagerly sought after by the "postage-stamp collector" of butterflies, whose work is wholly unscientific, or by the crack-brained enthusiast who evolves wild "systems" as an excuse for naming more and more aberrations; to the latter craze the term "mihi itch" has been aptly applied. As a result of this sort of thing we may expect heptanomials and octonomials in the near future.

This is not to say that all sub-subspecific names are unjustifiable. It seems to me that any form may be considered worthy of a scientific name, that has been proven to be a potential subspecies and therefore a potential species. Such a status should,

however, be proven (Gerould's genetical work with Colias is an example) and not merely postulated from no better grounds than the describers ambition to name another insect. In the meantime it behooves entomologists, in self-defense against the rising flood of varietal names, to give careful consideration to the recommendations of the British Committee on Entomological Nomenclature that all sub-subspecific names shall have no formal status in scientific nomenclature.

A.B.K.

The subject provoked a great deal of discussion.

Symposium.-Entomological Collections of the Rocky Mountain Region. Leaders, Vasco M. Tanner, C. L. Fluke and F. Martin Brown.

Entomological Collections of the Rocky Mountain Region, Vasco M. Tanner, Brigham Young University. Strange as it may seem, there are still a few individuals who are interested in collecting insects for the purpose of studying them from a morphological, ecological, and geographical point of view. These strange folk follow the injunction of the Master Teacher, Lewis Agassiz, who said: "Teach your pupils to bring in their specimens themselves, and above all teach them how to handle them. The earlier this training is begun the better. Talk about your specimens and try to make the pupils observe the most striking and telling features. Select such subjects that your pupils can not walk without seeing them. Train your pupils to be observers, and have them provided with the specimens about which you speak. If you study nature in books, when you go out of doors, you cannot find her."

Within this great intermountain territory, we find conditions for the study of entomology that are unsurpassed in this nation. From the hot, dry Lower Sonoran Valleys of Arizona and New Mexico to the snow-capped Arctic Alpine peaks of Colorado, Wyoming, Montana, Idaho and Utah, we find a great empire that is practically untouched as far as its intricate entomological problems are concerned.

With the exception of the labors of two or three outstanding entomologists of this region, nothing as yet has been accomplished in the establishment of entomological collections. In view of these facts, the writer contends that the time is at hand when something should be done to remedy this condition. Our educational institutions that propose to teach entomology should be adequately provided with entomological tools and equipment, which consists mainly of literature and an insect collection.

It is therefore the writer's purpose in this short paper to attempt to point out why a few large accurately labelled and determined insect collections should be established in the intermountain region:

First, within the eight states, Montana, Wyoming, Idaho, Colorado, Utah, Nevada, Arizona, and New Mexico, there are today, no well established entomological collections. Large series of the insect species of the intermountain states should be in the collections of the institutions that are prepared to care for them properly.

If collections are thus established, they become storehouses of facts, that may be used by students in their research work. At present our students are greatly handicapped, as well as discouraged, because of the lack of specimens and literature.

Second, since the time of Long's Expedition into Colorado in the summer of 1820, there have been government and private collection parties in this region, but all have collected in a hit or miss fashion, in various parts of the region, carrying their collections to eastern or Pacific coast centers of entomological activity. As a result, practically all of the types of new species of this region are inaccessible to our students without considerable expense and waste of time. This condition should be remedied by having paratypes and specimens that have been carefully compared by specialists, returned to various designated collections within the Rocky Mountain States.

Third, the Fauna of the Intermountain states is far from being well known, and collections should be made before conditions are too radically changed. The natural habitats are fast becoming changed, due to grazing of livestock, agricultural activities, forest fires, floods, etc. Civilization is bound to bring about radical ecological changes, and the extinction of many of the insect species; therefore, it is apparent that information regarding the original distribution and habitats of our insects be gathered before it is too late.

Fourth, well arranged, accurately labelled and determined specimens are indispensable where institutions expect to carry on entomological research. Large series of specimens of the species of various groups being studied are the materials out of which worthwhile morphological, systematic, and ecological studies are produced. Our students of entomology should work in the presence of large collections. They should handle the specimens and thereby come in first hand contact with our insect fauna. After all our laboratories and collections should be made to present as nearly as possible conditions as they prevail in the out-of-doors. It is the firm belief of the writer that collections should not be made just for exhibition purposes, wherein the specimens are treated as pricely objects, to be stuck on pins and left for future generations, but that collections should be used by entomologists just as the engineer or physician use their surveying or surgical instruments. How are we to learn about the workings of this phase of the organic whole, if we do not dissect and work with specimens? The writer is aware of the fact too, that there will always be an accumulation of reference specimens, types, etc. in growing up-to-date museums, but these may be properly cared for, and should be only a minor part of the type of collections under discussion.

In conclusion, the writer would like to urge the adoption of a policy for the establishment of several entomological collections in this intermountain territory; that certain institutions be designated as repositories for insects taken in this region, and that paratypes, and homotypes be deposited in designated regional collections.

If such a plan as the above is adopted, confidence and friendly relations should be established among the various workers through their cooperation, correspondence and exchange of specimens.

V.M.T.

C. L. Fluke, University of Wisconsin. Correct identification is essential to the proper understanding of the distributions, ecological relationships and efficient control of economic insects. One of the best methods to secure correct identification by others than experts is through available determined collections. Since many of the members of the Pingree Park Conference are students of various groups of insects and since they have nearly all made extensive collections of the Rocky Mountain forms it appears logical to suggest and urge that these members deposit representative collections at institutions which are available to the regional workers.

The Colorado Agricultural College has fostered the Pingree Park Conference and has made it possible for entomologists to gather for vacational collecting. They also maintain a fireproof building where collections are properly handled and I therefore sincerely believe that this institution should be the first to receive as many representatives as possible of the Pingree Park collections. Other institutions should also be included whenever specimens are available. If new species are collected it is suggested that paratypes be deposited in several of the Rocky Mountain collections, although I am convinced that it is advisable to place the holotypes in one of the larger museums of the country.

The Rocky Mountain fauna is also quite distinctive, producing many species which are not found in any other sections of the world. For the benefit of future students in entomology, especially for those working in this region, these collections will prove to be of inestimable value. I therefore heartily endorse the suggestions above, and hope that all members of the conference will enthusiastically cooperate.

C.L.F.

F. Martin Brown, Fountain Valley School of Colorado emphasized the importance of having representative collections of intermountain material kept in the region where they will be readily available. He mentioned briefly the faunal survey being sponsored by the American Museum of Natural History and expressed the hope that most of the material taken would remain in the state. This survey is discussed more fully in the abstract of Mr. Brown's talk given later in the week.

Following the talks of the leaders a very extended discussion took place in regard to the entomological collections in the region and how collectors can best be encouraged to return representative material to some collection in the region.

A motion was made by C. L. Fluke that the permanent chairman appoint a committee of 3 to consider the matter and report later in the week. The committee appointed was Vasco M. Tanner, C. L. Fluke and Geo. M. List.

Wednesday, August 17, 8:00 p.m. Otis Wade presiding.

The Role of Insects in the Food of Trout in the Rocky Mountain Region, John W. Scott, University of Wyoming. The importance of insects injurious to man is widely known. The damage to orchards, to gardens and to cultivated crops, the ravages to our forests, the losses to our domestic animals, as well as the direct annoyance and diseases which they produce in human beings, all testify to the endless warfare that man finds necessary to wage on his insect enemies and pests. It is true that these conditions are relieved somewhat by the scientific and practical control which man is able to use against such pests. However, as a refreshing contrast we may consider the role of insects in the food of trout in the Rocky Mountain Region.

The quality and flavor of the flesh of some of the trout from the cold streams and lakes of our Rocky Mountain region, are unexcelled by any food fish of America. At lower altitudes Mollusca, Crustacea, Annelids, and even other fish frequently comprise a large part of the diet of trout. In the Rocky Mountain region aquatic insects constitute the principal food supply. At certain times of the year and in many streams they form practically the entire food supply of trout. Other kinds of food are usually more or less localized, or are incidental or accidental in nature.

In 1907, Juday reported on the stomach contents of 241 trout taken from Twin Lakes, Colorado. To date, we have examined at the University of Wyoming, the stomach contents of over 1,000 trout, chiefly Brook trout, taken from many streams and lakes located in various parts of Wyoming. Collections were made from April to November, inclusive, with an altitudinal range of from less than 6,000 to over 11,000 feet. Trout have been taken through 1-3 feet of ice in April and after ice had begun to form in October and November.

Except in April and May most of these trout were taken with an artificial fly. Contrary to popular opinion, grasshoppers and minnows were almost completely lacking in their diet. The same was true of Annelids and Mollusca, though some of the latter were occasionally taken as food in quiet ponds and lakes. Crustacea were likewise wanting in streams and usually this was true of the lakes, but in a few instances they were the chief food supply in high, cold, alpine lakes at about 11,000 feet. In streams and in most lakes the great preponderance of food taken was made up of aquatic insects. These consisted chiefly of larval, nymph or pupal stages of certain Diptera, Ephemerida, Trichoptera and Plecoptera. Other orders of aquatic insects were eaten in much smaller amounts, and less regularly. Land insects occurred in the diet particularly toward the latter part of summer, evidently due to dropping into the water accidentally or to flying low over the surface where they could be snapped by some hungry trout. Few Hymenoptera were found except ants, and these were most common during the swarming season. In some lakes, particularly in the Medicine Bow range, water mites formed a considerable item in the diet. The collections made in April, October and November indicate that trout in this region do not take much food in winter, probably in part due to its scarcity. In general, the amount and kind of food taken depends upon,

(1) the season of the year, which largely determines the abundance of food; (2) the altitude, which in part determines the distribution of some species; and (3) the water flow, rapidity, temperature and amount, which is an important factor in determining the species present and their relative abundance. Without the insects of our Rocky Mountain region we could not have our trout;

J.W.S.

V. M. Tanner spoke briefly of some studies made of the food of trout in Utah. Ants were found to be an important source of food in many lakes. More than 150 trout to the acre will "over graze" most lakes. The attractiveness of artificial flies was of interest after the experience of some fishermen during the afternoon. Tanner had some interesting suggestions in this connection. Some catches made Thursday indicated that these were of value.

Thursday, August 18.

The entire day was given to collecting, fishing, the longer hikes, or whatever anyone wished to do. Each one was given a box lunch that they would not need to come to camp at noon. Many insects were taken in the forenoon, but showers interfered somewhat with the collecting in the afternoon. Suggestions made the evening before, as to the food of trout, apparently were good as some excellent catches were made. Hiking parties went to Stormy Peak, The Cirque and to snow.

As the evening had been set aside by the entertainment committee as stunt night some groups took advantage of some of the time for "Rehersals". The evening proved to be a very enjoyable one. The five stunt groups, under the leadership of Mrs. J. E. Ackert, Donald A. Wilbur, Mrs. J. L. Hoerner, Roy Richmond and F.B. Paddock proved to have more than the usual amount of talent and originality. The group led by F. B. Paddock received the most votes as having the best stunt.

Friday, August 19, 8:30 a.m. Vasco M. Tanner presiding.

Codling Moth Investigations in Missouri, L. Haseman, University of Missouri. Recent investigations would indicate that the difficulty which Missouri fruit growers have had in recent years in satisfactorily controlling the codling moth, has been due in large part to variation in its yearly life cycle or its biology. If, from year to year, there is material variation in the dates of emergence and the grower follows a spray schedule timed largely by petal fall and the calendar, as many have done in the past, the populations of worms may soon build up so that effective control is impossible. State wide studies of the biology of the pest were begun in 1928 and they now include some forty observation stations distributed over the apple growing sections of the state. Breeding cages, bait pans and tree bands are used in following the development of the pest thruout the year. Records of emergence received from these breeding stations are used in timing the cover sprays for each apple growing section. Every commercial grower and most of the small growers receive reports from Columbia on moth activity from week to week and recommendations as to dates on

which each cover spray should be applied. This spray service built around the yearly observations on the biology and behavior of the pest is largely responsible for the apparent headway being made in bringing the pest under control. There are still too many worms in Missouri but the results this year, even with a light crop and a tendency to lighten up on sprays, indicate that the growers can control the pest.

Behavior studies are also being made, especially in connection with the young worms from the time they hatch until they enter the fruit. That is the critical time in the life of the worm as regards control with sprays. The effect of rain on the pest at this time is also being studied. The worm spins a thread wherever it goes and it walks on this. It has a great deal of difficulty attaching its thread on fruits recently sprayed with an oil emulsion. No extensive work is being done on the testing of substitutes for arsenate of lead. That work we have felt can be more effectively done by the Federal Department and those state departments especially equipped to study insecticides. Summer oils used in combination with arsenate of lead are giving some encouragement. Extensive investigations to determine the lethal dose for apple worms indicate that arsenate of lead is entirely effective if so placed that the worms get it. The supposition that certain strains of apple worms have developed a resistance to arsenic has been shown to be false by careful feeding and hypodermic injection experiments. The Colorado strain of worms furnished by Dr. List, which in earlier experiments carried on in Virginia succeeded in entering sprayed fruits better than the Virginia worms, has shown no greater resistance to arsenic than the supposedly susceptible Virginia worms, or native Missouri worms. They may be more clever in entering sprayed fruits without eating the poison, but they have proven to be just as susceptible as the other strains of worms when it was introduced in the alimentary canal or injected into the haemocoele.

To supplement control of the pest with properly timed spray applications, chemically treated tree bands and orchard sanitation and the screening of packing houses, where they are located in the orchard, are being stressed and they are giving very good results. Two years ago in one packing house 10,000 first brood moths were trapped. Some of the best commercial growers in Missouri who have always sprayed thoroughly and practiced orchard sanitation have never let the pest get beyond control, and some growers who have had severe losses have again brought the pest under control.

L.H.

Field Plot Experiments for Testing the Efficiency of Certain Attractors in Grasshopper Baits, F. T. Cowan, Colorado Agricultural College.

The experiments reported on in this paper were undertaken to determine the most economical and efficient grasshopper bait for Colorado.

Materials

Twelve baits were included in this test and each one was repeated twelve times. Following is a list of the baits used:

Bait No. 1 – Bran, sodium arsenite, water (Basic Formula)
" " 2 – Basic Formula and cane molasses
" " 3 – " " and beet molasses
" " 4 – " " cane molasses and amyl acetate
" " 5 – " " beet molasses and amyl acetate
" " 6 – " " and salt
" " 7 – " " cane molasses, amyl acetate and salt
" " 8 – " " beet molasses, amyl acetate and salt
" " 9 – Purina sweet roughage, amyl acetate, arsenite and water
" "10 – Basic formula, salt and amyl acetate
" "11 – Dried beet pulp, amyl acetate and water
" "12 – Delicious hopper bait, a product of the Raven Honey Dew mills, Omaha, Nebraska.

All baits were mixed in the following proportions:

Bran	100 pounds
Sodium arsenite	1 quart
Molasses	2 gallons
Amyl acetate	3 ounces
Salt	5 pounds
Water	14 gallons

Methods of Conducting Experiments

All baits were mixed on the evening proceeding the day they were scattered. All baits were broadcast in the approved manner early in the morning at an air temperature of 65 degrees F. A quantity of hoppers were swept from each plot during the afternoon of the same day and placed in wire screen cages for observation. The dead hoppers were counted out each day for four successive days and a record kept of their numbers. On the fourth day the live hoppers remaining were also counted and removed from the cage. The total percentage of kill was then computed by dividing the total number of dead hoppers by the total number caged.

Results.

The Variance method was used in analyzing the data. The results are given in the two tables below.

Table No. 1

Comparing each bait with Bait No.1

Bait No.	Average kill for bait	P.E. of difference	Difference	Difference/P.E.
1	61.1 ± 1.56			
2	68.2 ± 1.75	± 2.34	+7.1	3.
3	64.8 ± 1.66	± 2.27	+3.7	+1.62
4	63.3 ± 1.62	± 2.24	+2.2	+ .98
5	68.4 ± 1.75	± 2.34	+7.3	3.12
6	55.9 ± 1.43	± 2.11	-1.2	- .56
7	61.4 ± 1.57	± 2.20	+ .3	+ .13
8	64.3 ± 1.65	± 2.27	+3.2	+1.40
9	42.1 ± 1.08	± 1.89	-19.0	-10.05*
10	54.8 ± 1.40	± 2.09	-6.3	-3.01*
11	51.8 ± 1.33	± 2.04	-9.3	-4.55*
12	59.1 ± 1.51	± 2.17	-2.0	- .92

Table No.2

Establishing elimination level

Bait No.	% kill and P.E.	P.E. of Difference	Difference	Difference/P.E.
5	68.4 ± 1.75			
2	68.2 ± 1.75	±2.47	.2	.08
3	64.8 ± 1.66	±2.41	3.6	1.49
8	64.3 ± 1.65	±2.40	4.1	1.70
4	63.3 ± 1.62	±2.38	5.1	2.14
7	61.4 ± 1.57	±2.35	7.0	2.97
1	61.1 ± 1.56	±2.34	7.3	3.12
12	59.1 ± 1.51	±2.31	9.3	4.02
6	55.9 ± 1.43	±2.25	12.5	5.55
10	54.8 ± 1.40	±2.24	13.6	6.07
11	51.8 ± 1.33	±2.19	16.6	7.58
9	41.1 ± 1.08	±2.05	26.3	12.82

Summary

In Table No. 1 all baits are compared with Bait No. 1. Those figures in the column headed Difference/P.E. which are underlined show that that particular bait is significantly better than Bait No. 1. Those preceeded by plus sign are better than Bait No. 1 but not significantly so. Those preceeded by a minus sign are poorer than Bait No. 1 and the ones marked with stars are significantly worse.

In Table No. 2 all baits are compared with Bait No. 5, the bait showing the highest average kill over 12 replications. In this way an elimination level is established just above Bait No.1.

It will be noted that Baits 2,3,4,5,7 and 8 are all better than Bait No. 1 but only two (Baits 2 and 5) are significantly better. In Table 2 it will be noted there is no significant difference between the six highest ranking baits.

The results would further indicate there is no substitute for bran since Baits 11, 9, and 12 all rank well below Bait No.1. Salt might well be said to be useless under Colorado conditions. Cane molasses showed to better advantage when used without the amyl acetate and beet molasses gave the best results when used in combination with amyl acetate.

Conclusions

Since beet molasses is abundant in Colorado and cane molasses is not it would seem advisable to use the following formula in this state:

Bran.....100 pounds
Sodium arsenite..... 1 quart
Beet molasses..... 2 gallons
Amyl acetate..... 3 ounces
Water..l..... 10-14 gallons

F.T.C.

Notes on the Stratiomyidae in Colorado, M. T. James, University of Colorado. The Dipterous family Stratiomyidae has little economic value, the larvae of some species being slightly beneficial as scavengers or as food for fishes; and it is probably for this reason that the taxonomy of this group has been neglected in the Rocky Mountain Region. A very brief account of the author's work in this family was given. At present, forty-five species in ten genera are recorded from Colorado. The habits of the adults -- which are comparatively constant throughout the group, the insects feeding on flowers and resting in vegetation -- were discussed. Comparatively little is known regarding life histories. Our most common forms are either aquatic or live in decaying wood in the immature stages. Finally, the generic names Stratiomys and Pedicella, which must replace Stratiomyia and Geosargus (Sargus) respectively, were discussed. The writer expressed his indebtedness to Mr. C. H. Curran for aiding him in his work on this family.

M.T.J.

Stretchia Plusiiformis Hy. and Edwards, a Pest on Gooseberries, John L. Hoerner, Colorado Agricultural College. In 1930 gooseberries were received that had been eaten into and hollowed out. It was first thought to be the work of the gooseberry fruit worm. The following spring the injury was found to be due to a climbing cutworm, working at night. Rearing the worms to adults took until the following spring. They were determined as Stretchia plusiiformis by Foster H. Benjamin of the U.S.D.A., Bureau of Entomology.

The worms injure the berries by eating holes in them and removing the seeds. Sometimes the berry is hollowed out. When the worms are small they feed to a slight extent on the foliage of the plants. As high as 80% of the berries in some fields have been destroyed.

The life history, as far as known, is as follows: The adult moths emerge from the overwintering pupae during the month of March, being most numerous about March 15th. Eggs were obtained in the laboratory but none were observed in the field. The female is capable of laying about 300 eggs. The worms start injuring the berries about the middle of May and are full grown by the middle of June. At this time they enter the ground and make oval pupae cells inside of which pupation takes place. The pupal period continues through the summer until the following March, when the adults emerge.

Spraying with lead Bordeaux, just as the petals fell, gave about 75% control. This was supplemented the later part of May by poison bran mash, made of white arsenic, bran and water. About a teaspoonful of the mash was applied at the base of each plant.

J.L.H.

The cabbage Looper on Lettuce, Sam C. McCampbell, Colorado Agricultural College. Reports of serious injury to head lettuce by a leaf-eating worm reached the State Entomologist's Office during

June, 1932.

A trip was made to Del Norte (altitude 7778) June 24th. At this time a looper belonging to the Autographia group was found causing serious injury to many lettuce fields. Total loss of crop resulted in some cases where no control had been used. The use of dusts such as arsenate of lead or Paris green, mixed with hydrated lime, had resulted in good protection to the plants, which were quite small at this time. Most of the larvae present at this time were in the last instar. Second brood larvae appeared about July 20th, and what were thought to be third brood larvae about August 7th. It was thought advisable to avoid the use of arsenical poisons for second and third brood larvae, because of the possibility of a residue on plants in excess of the lawful tolerance.

Head lettuce in this locality is quite subject to tip burn; spraying and dusting experiments indicated that when the head is being formed spray burning is also a problem. Tests of various Pyrethrum products nicotine-sulphate, and Kaolith as liquid sprays and Dutox and Kalite dusts, resulted in the following recommendations: Dutox 1 pound, hydrated lime 5 pounds, as a dust, or Kaolith 1 1/2 pounds to 50 gallons of water, as liquid spray. Indications were that the dust was more efficient than the liquid spray.

Information from the U. S. Pure Food and Drug Administration office of Denver, indicated that they were as much concerned about the barium fluosilicate residue as the arsenical residue on lettuce. Test plots of arsenate of lead, calcium arsenate and barium fluosilicate were maintained and tests for residue are being planned.

Two species of moths found flying in fields were thought to be Autographa snowi Hy. & Ed. and Autographa californica (Speyer)*

*Since this paper was given, considerable breeding cage material has emerged, together with later field-collected material. Our opinion is that Autogropha californica was responsible for most of the damage.

S.C.McC.

The Paper Wasps of Utah, C. Lynn Hayward, Brigham Young University. This article constitutes a brief review of the writer's recent publication entitled "The Paper Wasps of Utah, Including a Description of a New Variety of Polistes canadensis Linn."which appeared in the Proceedings of the Utah Academy of Sciences, Vol. IX, 1932, pp. 85-101.

The paper consists of fifteen pages of printed matter and one plate. It contains keys and brief descriptions of the species and varieties of the Polybiinae, Polistinae, and Vespiae at present known to live in Utah. Details of distribution and part of the synonomy are also given.

A total of seventeen species and varieties of the social wasps are discussed. The plate contains thirty-one drawings of many of the morphological and color characters used in the keys as well as the male genitalia of most of the species.

A description of Polistes canadensis kaibabensis, a new variety from the Grand Canyon of the Colorado, Arizona, is given.

C.L.H.

The Preparation of Crystalized Honey for Market, R.G.Richmond, Colorado Agricultural College. The sale of granulated honey presents advantages as well as hazards. Improper heating is frequently followed by coarse granulation and undesirable graininess. Normal granulation of extracted honey should be broken down to a creamy consistency, before sale. This may be done by heating the honey in sixty pound cans, at 90 degrees F., for twenty-four hours, removing and stirring. The honey may then be funnelled into containers for sale. Mechanical means for the latter part of the process are readily devisable. It is usually advisable not to sell honey, for consumption in crystalized form, in the containers in which crystalization has taken place. None of the natural flavor or aroma is sacrificed in the above process. The plan applies under Colorado conditions.

R.G.R.

Friday, August 19, 1:00 p.m. P. B. Lawson presiding.

Taxonomic Aspects of Aphids on Ribes, M. A. Palmer, Colorado Agricultural College. Similarities and differences in 9 species were presented and illustrated by charts.

Aphids belonging to Myzus (Kakimia), Capitophorus, Amphorophora and Rhopalosiphum, have antennae almost identical but differ in cornicle structure and somewhat in caudal characters.

Three species of Kakimia are separated from each other by antennal measurements and numbers of sensoria. Kakimia cynosbati (Oestlund) (?) differs from Oestlund's description and metatypes, which are immaculate, in dorsal markings which are usually present in all degrees from dots to dashes and even occasionally a dorsal patch. A species on Ribes cereum and vicossissimum, wild species of Ribes, found in the hills, differs from the other two species in longer hairs and cornicles and is without markings.

Three species of the genus Aphis occur on Ribes. These differ in corhicle and antennal proportions but the variations intergrade.

A discussion followed on methods of mountain Aphids.

M.A.P.

The Potato Psyllid, L. B. Daniels, Colorado Agricultural College. A peculiar malady has affected the early potato crop of Colorado during certain years, and has caused heavy losses to farmers. The condition is marked by the curling of the terminal leaves, retarding of the normal growth of the plant, and under ground an abnormal set of tubers, frequently as high as 100, is formed which rarely reach the size of a market potato. The disease appears to attack the earlier plantings although this season shows very definite signs of its affecting the later plantings. Many explanations have been attempted in the past few years for this

infection, such as frost, high temperatures, soil moisture (improper time of irrigation and water soakage), poor seed, abnormal sunlight and soil deficiencies. From observations carried on the past three seasons, 1930-'31 and '32, the tomato psyllid Paratrioza cockerelli Sulc, appears to be a very important factor in producing the condition. Preliminary studies have shown rather definitely that the psyllid may be transmitting a virus, toxin or some other causative agent, which inoculated into the plant by the feeding nymphs, completely upsets the growth.

Several wild host plants have been found for the insect, namely the species of ground cherries, Physalis lanceolata, Quincula lobata, and two species of Solanum, S. rostratum and S. trifolium. The areas where host plants are abundant offers admirable breeding grounds for many psyllids after the potato plants have matured. Preliminary work on control was done on 3 fields this season. Lime-sulphur, oil, and nicotine-sulphate were the principal insectides experimented with.

L.B.D.

The Colorado Faunal Survey, F. Martin Brown, Fountain Valley School of Colorado. The Colorado Faunal Survey has been organized to study further the distribution of living forms in the State of Colorado and their relationship to physical conditions and changes. The work is being carried on by the Fountain Valley School of Colorado and is sponsored by the American Museum of Natural History. It is the plan of the Survey to bring to the State men of nation-wide reputation in their various fields to make special studies in the State. In some fields of investigation men of high caliber are already resident in the State. These men are being asked to cooperate and several of them are devoting their entire summers to it. Since the invertebrates are by far the largest group of living things in the region, a proportionately large amount of time and effort is being expended in studying them. During the past season eight men worked in this field, compared to a single worker devoting all of his time to vertebrates. From this it will be seen that the Survey differs materially from those undertaken by the U. S. Biological Survey in which the study of the invertebrates is casual.

From time to time the results of the investigations will be published. These will be of two forms: Notes and preliminary reports appearing rather frequently, and, when a worker feels that his field has been thoroughly studied, as monographs.

In addition to the usual courses of research in such an endeavor as this, thorough studies are being made of the climate, soils and water to study the extent of their influences on the distribution of the various species and their effects as determiners of variation.

In order to have a "measuring stick," a survey is being made of two regions each a square degree in extent, one centering approximately on Pike's Peak in El Paso County, the other on Snowmass Mountain in Pitkin County. At the same time reconnaissance is being made in all quarters of the state in order to get a general view of the entire problem. The major portion of these collections will be retained in the State for consultation, loan and deposit in University and local museums.

Another field of research that is being engaged in is the tracing of type localities, especially of the older authors who usually allocate the type to "Colorado." When possible, material will be collected from these localities and a stock of it held for deposit in museums or loan to workers. I need not emphasize the importance of this; it is evident. Nor do I need say that any information we receive along this line will be greatly appreciated. As this information accumulates, it will be published for the benefit of workers at large.

F.M.B.

Friday, August 19, 7:30 p.m. Donald A. Wilbur presiding.

The Romance of the Honeybee, F. B. Paddock, Iowa State College. Most of us today in considering the honeybee are inclined to think of it only from the commercial viewpoint. This is perfectly legitimate in view of the fact that many of the fruits which we enjoy are the result of pollination very largely through the services of the honeybee. Some outstanding examples of this are Royal Anne Bing cherries and now we are saying that it is necessary to use bees for more successful pollination of sour cherries, of apples, of pears or of prunes and apricots. In some sections peaches have been improved through the use of bees. Its indirect benefit is not often appreciated, although it is with us all the time. Furthermore, we do not always realize the value of bees in the pollination of our clover seeds and in the pollination of alfalfa seed, but this is really of more value to mankind than the direct benefit which we enjoy in the form of the natural sweet which is obtained by the bee from the flowers and made into the product we call honey.

The other direct benefit is through the use of beeswax which is so to speak, a by-product of the bee in the manufacture of honey.

It is certainly an interesting picture to create in one's mind of the early caveman treating his family to a feast of honey, which he has secured by overcoming with his club a nest of bees in some hollow tree, or in a hole in the rock. The keeping of bees for the honey is one of the oldest types of husbandry practiced by mankind. It is fascinating to go through the early records and note the practices regarding bees. The close association of bees and their products, honey and wax, with the development of the human race, is an intensely fascinating sideline for us today. Bees have been a symbol of industry, cooperative effort and straightness of purpose for many centuries. Honey, although a food, came to symbolize for the human race strength and purity, and dignity of carriage. Honey was used in a good many of rituals

associated with the development of the human from the time of birth until the time of death. We must also recall the use of beeswax in connection with the religious services which developed very early in the history of the human race and is continuing strong today. This is in the form of the burning of pure beeswax candles for sacramental purposes.

The life economy of the honey bee must be considered as unique. It represents the highest community effort among the insects. Here all individual effort has been lost for the good of the whole, and if we have any thought of communism we have only to turn to the honeybee to see in its extreme the society of the honeybee as organized today is more perfect from a political standpoint than from the social standpoint than anything which has been attempted by the human race. Many of the problems which confront us are definitely taken care of in the organization of the honeybee, such as over-population, food supply normal for the requirements, the care of the young, the disposal of the incapacitated, since only the physically fit are permitted within the hive. The individual has not only lost its ability to do for itself but finds that individual life is absolutely impossible.

As to efficiency of operation, we must give due credit to the honeybee in economy of material throughout and in economy of energy expended. The honeybee represents an efficient machine at all stages. Thought along these lines may be a matter of relaxation in the busy, monetary days of ours.

F.B.P.

Mineola scitulla Hulst., an Enemy of Stone Fruit in Idaho, Claude Wakeland, University of Idaho. Slides were used to show the type of injury of this species and the different stages of development.

Business Session (Friday afternoon). C. P. Gillette, Chairman.

The committee appointed earlier in the week on insect collections recommended the appointment of a permanent committee to encourage workers that collect in the Rocky Mountain region to return to museums within the area as many specimens as possible that accurately determined material may be available for students of the region, and to encourage in any other manner the building up of some of the more outstanding collections.

The committee appointed was Vasco M. Tanner, F. Martin Brown and Geo. M. List, Chairman.

Report of the Resolution Committee.

Resolved that: 1. The Ninth Annual Rocky Mountain Conference of Entomologists express its appreciation of the hospitality of the Colorado Agricultural College and the Department of Forestry for the use of the buildings and grounds at Pingree Park, which are so admirably fitted for our purposes.

2. We express our appreciation and thanks to the members of the

Department of Entomology of the Colorado Agricultural College, and especially to Director Gillette, Dr. List and Dr. Jones, for arranging for the Conference and in making this meeting not only a profitable one, but also a most pleasant one.

3. That this Conference endorse the effort to more adequately stock the Little South in Pingree Park with trout.

Respectfully submitted

F. B. Paddock
F. Martin Brown

The officers elected for 1933 were C. P. Gillette, Chairman; Geo. A. Dean, Vice-chairman; Geo. M. List, Secretary and C. R. Jones, Treasurer.

George M. List, Secretary

From the Collecting Net

Claude Wakeland and family spent several days in the Rocky Mountain National Park following the Conference, after which they drove thru to Columbus, Ohio, where Wakeland will spend a year in graduate work.

There were more than the usual number of collectors in the group this year and they were favored with good weather conditions. Some valuable additions to the Pingree Park faunal list should result.

Dr. Lawson fed all the insects he collected, except the leaf hoppers, to his hour glass spiders.

Donald A. Wilbur and family and C. R. Collins made a "non-stop flight" from Manhattan, Kansas, on Sunday before the Conference, driving through in the one day.

Leonard Haseman and family arrived a week early and secured a cabin in Pingree Park, where they enjoyed a two week's outing. The boys, Joseph, Leonard, and Wilbur became real fishermen during the time.

C. H. Richardson and family spent several days in the Yellow Stone National Park and in the Teton Mountains, before the meeting.

Miniature golf seems to have died every place except in Pingree. It will be popular there as long as Professor Dean attends

Dr. Jones was the fishing champion again. He brought in 35 nice ones on Thursday. E. R. Bliss was second with 26. Dr. Larrimer and Professor Houser won't believe this.

Professor F. B. Paddock and family visited friends and relatives in Fort Collins for several days after the meetings.

C. L. Fluke spent several days following the meetings in going over the Syrphidae in the Colorado Agricultural College collection.

The annual ball game created a great deal of interest. The Colorado entomologists had hoped they could again meet the Kansas team and early threats indicated that this would be possible, but it seems that some of the Kansas players were incapacitated in early season practice. The Colorado players feeling just a little chesty after the 1931 game challenged the world and found it was just a little too much for them. They lost by one bad inning, the score being 7 to 12. Dr. Lawson was umpire.

Dr. and Mrs. Alexander B. Klots spent most of the summer collecting in the Rocky Mountain Region. Points where stops were made were Florissant, for the fossil beds, the Garden of the Gods, Pikes Peak, Fort Garland, the Sangre de Cristo Range and lastly Pingree Park.

On Friday evening, after the short program, a large bonfire was enjoyed by all on the ridge back of the lodge. This is becoming an annual occasion. And how Lawson can sing Sweet Adeline, especially when Wakeland gets his mandolin out.

Mr. and Mrs. F. Martin Brown believe in camping out when they go to the mountains. Each night they would take their bed roll out on the mountain side, where they could hear the coyotes yell.

We have always refrained from saying anything in the reports about the various stunts put on for stunt night as justice cannot be given them, but at the request of several we are giving here a verse used in one of the stunts and written by Mrs. E. R. Bliss.

Tune of Springtime in the Rockies.

When it's August in the park here
We'll be coming back to you
With our bug nets and our fishpoles
And our dreams of '32
Where the List and Jones and Cowan
And the Richmond tried and true
Will be waiting to receive us
As they did in '32.

Wedding anniversaries were celebrated during the Conference by Dr. and Mrs. Ackert and Dr. and Mrs. Haseman. Dr. Lawson and Frank Cowan experienced birthdays. The best wishes of the crowd were extended in various ways.

Dr. Tanner, C. L. Hayward and Lee Jeppson spent several days collecting in southern and western Colorado on their return trip to Provo, Utah.

Bernard Travis and family went on to Idaho for a few days visit with Mrs. Travis' parents.

Dr. and Mrs. Otis Wade and Eugene F. Powell and family took cabins in The Big Thompson Canon west of Fort Collins for several days after the Conference.

Dr. C. L. Fluke practices what he preaches. Just as this report is being finished, only a few weeks after the meetings, a box of excellent Pingree Park Syrphidae is received from him. There are 49 species with 74 specimens, several being paratypes.

Shortly after the meetings 30,000 fingerling trout were placed in a retaining pond on Little South, only a short ways above the lodge and will be released into the stream next summer.

The dates for the 1933 Conference have been tentatively set for August 14 - 19.

G.M.L.